



ENVIRONMENTAL PROTECTION AGENCY

[EPA-HQ-OW-2014-0138; FRL-9910-21-OW]

Peer Review of the Draft Health Effects Documents for Perfluorooctanoic Acid and Perfluorooctane Sulfonate – Interim List of Potential Peer Reviewers

AGENCY: Environmental Protection Agency (EPA).

ACTION: Notice; request for public comments.

SUMMARY: Environmental Protection Agency (EPA) requests public comments on the interim list of candidates being considered as peer reviewers for the contractor-managed external peer review of the draft documents entitled, “Health Effects Document for Perfluorooctanoic Acid” and “Health Effects Document for Perfluorooctane Sulfonate.” This notice provides the names, professional affiliations, expertise, education, and professional experience of the candidate reviewers. The public is requested to provide relevant information or documentation on the candidates who are being evaluated by the contractor (Versar, Inc.). Once the public comments on the interim list of candidates have been reviewed and considered, Versar will select the final six to seven peer reviewers who, collectively, best provide expertise spanning the multiple subject matter areas covered by the draft documents and, to the extent feasible, best provide a balance of perspectives.

DATES: The public comment period on the interim list of peer reviewers begins on **[INSERT DATE OF PUBLICATION IN THE FEDERAL REGISTER]** and ends on **[INSERT DATE 21 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]**.

ADDRESSES: Any interested person or organization may submit comments on the interim list of peer reviewers. Public comments should be submitted to the EPA contractor, Versar, Inc., no later than **[INSERT DATE 21 DAYS AFTER PUBLICATION IN THE FEDERAL REGISTER]**, by one of the following methods:

- *Online:* <http://peerreview.versar.com/epa/pfoa/interim-list.html>
- *Email:* peerreview@versar.com (subject line: PFOA/PFOS Peer Review)
- *Mail:* Versar, Inc., 6850 Versar Center, Springfield, VA 22151 (ATTN: Betzy Colon)

Please be advised that public comments are subject to release under the Freedom of Information Act.

FOR FURTHER INFORMATION CONTACT: Questions concerning the comment process or website should be directed to the EPA contractor, Versar, Inc., at 6850 Versar Center, Springfield, VA 22151; by e-mail peerreview@versar.com (subject line: PFOA/PFOS Peer Review); or by phone: (703) 642-6727 (ask for Betzy Colon). For additional information concerning the health effects documents, please contact Joyce Donohue at U.S. EPA, Office of Water, Health and Ecological Criteria Division (Mail Code 4304T), 1200 Pennsylvania Avenue NW., Washington, DC 20460; telephone: (202) 566-1098; or e-mail: donohue.joyce@epa.gov.

SUPPLEMENTARY INFORMATION:

I. Background Information on the Draft Health Effects Documents

EPA has prepared draft health effects documents for Perfluorooctanoic Acid (PFOA) and Perfluorooctane Sulfonate (PFOS) for purposes of public comment (scientific views) and peer review. EPA will consider any public comments and peer reviewer comments submitted in accordance with the Federal Register notice dated February 24, 2014 (<http://www.gpo.gov/fdsys/pkg/FR-2014-02-28/pdf/2014-04455.pdf>) when finalizing the documents. Once the health effects documents are finalized, they will be utilized to develop

lifetime health advisory values for each chemical. PFOA and PFOS are listed on the third contaminant Candidate List (CCL3)¹ and both chemicals are currently being monitored under the third Unregulated Contaminant Monitoring Rule (UCMR3)². The draft documents are available through www.regulations.gov (docket ID number EPA-HQ-OW-2014-0138) and at <http://peerreview.versar.com/epa/pfoa>.

II. Process of Obtaining Candidate Reviewers: On February 24, 2014, EPA released the draft health effects documents on PFOA and PFOS for the purposes of public comment and peer review. Consistent with guidelines for the peer review of highly influential scientific assessments, EPA tasked a contractor (Versar, Inc.) to assemble six to seven scientific experts to evaluate the draft documents. As part of the peer review process, a public nomination period was held from February 24, 2014 to March 21, 2014, during which members of the public were able to nominate scientific experts with knowledge and experience in one or more of the following areas: (1) epidemiology, (2) toxicology (liver effects, immunotoxicity, neurotoxicity, developmental and reproductive toxicology, etc.), (3) membrane transport, (4) human health risk assessment, (5) pharmacokinetic models, and (6) mode-of-action for cancer and noncancer effects. Versar also conducted an independent search for scientific experts to augment the list of publically-nominated candidates. In total, Versar evaluated the 29 candidates nominated during the public nomination period and identified by Versar.

Selection Process: Versar considered and screened all candidates against the selection criteria described in the Federal Register dated February 24, 2014 (<http://www.gpo.gov/fdsys/pkg/FR-2014-02-28/pdf/2014-04455.pdf>), which included having demonstrated expertise in the areas described above, being free of any conflict of interest, and being available to participate in-

¹ CCL3 is a list of contaminants that are currently not subject to any proposed or promulgated national primary drinking water regulations, that are known or anticipated to occur in public water systems, and which may require regulation under the Safe Drinking Water Act (SDWA). Additional information about the CCL3 can be found at the following Web site: <http://water.epa.gov/scitech/drinkingwater/dws/ccl/ccl3.cfm>.

² EPA uses the Unregulated Contaminant Monitoring (UCM) program to collect data for unregulated contaminants suspected to be present in drinking water. Results from UCMR3 can be examined as they become available at the following Web site: <http://water.epa.gov/lawsregs/rulesregs/sdwa/ucmr/ucmr3/>.

person in a two-day peer review meeting in the Washington, DC area (exact date to be determined). Following the screening process, Versar narrowed the list of potential reviewers to 15 candidates. This Federal Register notice is to solicit comments on the interim list of 15 candidates. The public is requested to provide relevant information or documentation on the candidates who are being evaluated by Versar. Once the public comments on the interim list of candidates have been reviewed and considered, Versar will select the final six to seven peer reviewers. Additional information on the scientific peer review process can be found at:

<http://peerreview.versar.com/epa/pfoa>.

Responsibilities of Peer Reviewers: Peer reviewers will be charged with evaluating and preparing written comments on the draft PFOA and PFOS health effects documents. Specifically, reviewers will provide general comments, their overall impressions of the documents, and respond to 12 charge questions. This includes determining the appropriateness of the quality, accuracy, and relevance of the data in the documents. Any public comments submitted to EPA's public docket (docket ID number EPA-HQ-OW- 2014-0138) during each document's 60-day public comment period will also be provided to the peer reviewers for their consideration. In addition, peer reviewers will participate in a two-day peer review meeting to discuss the scientific basis supporting EPA's draft health effects documents. The meeting will be held in the Washington, DC metro area and is anticipated to take place in the late July or August timeframe. Following the peer review meeting, Versar will provide a peer review summary report to EPA containing the comments and recommendations from the peer reviewers. The final peer review report will also be made available to the public. In preparing the final health effects documents, EPA will consider Versar, Inc.'s report of the comments and recommendations from the external

peer review meeting, as well as written public comments received through the official public docket.

III. Interim List of Peer Reviewers: Following are the names, professional affiliations, expertise, education, and professional experience of the current candidates being considered for the external peer review of the draft PFOA and PFOS Health Effects documents. After review and consideration of any public comments received, Versar will select from this list the final six to seven peer reviewers who, collectively, best provide expertise spanning the multiple areas listed above and, to the extent feasible, best provide a balance of perspectives. Once the final six to seven peer reviewers are selected by Versar, a third Federal Register notice will be published at least 30 days prior to the external peer review meeting with the names of the final peer reviewers, along with information on the meeting date, location, and registration details.

1. John C. Bailar III, M.D., Ph.D., University of Chicago (Emeritus)

i. *Expertise:* Epidemiology and Human Health Risk Assessment

ii. *Education:* Yale University, M.D. (1955) and American University, Ph.D. in Statistics (1973)

iii. *Professional Experience:* Dr. Bailar is Professor Emeritus at the University of Chicago, where he was founding Chair of the Department of Health Studies. Prior to joining the University of Chicago, Dr. Bailar was at the U.S. National Cancer Institute from 1956-1980, Harvard University 1980-1988, and McGill University (where he was Chair of Epidemiology and Biostatistics) 1988-1995. Since he retired in 2001, Dr. Bailar has been Scholar in Residence at the National Academies. Dr. Bailar received his M.D. from Yale University in 1955 and his Ph.D. in Statistics from American University in 1973. His areas of expertise include statistics, biostatistics, epidemiology, and environmental and occupational hazards. For many years his

professional interests centered on the causes and prevention of disease. More recently he has focused on improving quality and performance in science generally, with a special focus on communication. Dr. Bailar has served on more than 40 committees at the National Academies, and served as chair or co-chair of 13 of these committees. Dr. Bailar has received numerous special/prestigious honors, awards and recognitions, including MacArthur Fellow 1990-1995, elected member to both the Institute of Medicine and the International Statistical Institute, honorary Fellow, American Medical Writers Association, and most recently an Honored Member of the Board of Editors in the Life Sciences. In addition, for 11 years, he was the statistical consultant and a member of the editorial board for *The New England Journal of Medicine*. Association memberships of Dr. Bailar include the American Statistical Association (life member) and Council of Science Editors (Past President). Dr. Bailar has more than 250 scientific publications including articles in peer reviewed journals, books, book chapters, and proceedings, and has published widely in the statistics and epidemiology literature.

2. James V. Bruckner, Ph.D., University of Georgia

i. *Expertise:* Toxicology (liver effects, neurotoxicology, and developmental/reproductive) and Human Health Risk Assessment

ii. *Education:* University of Michigan, Ph.D. in Toxicology (1974)

iii. *Professional Experience:* Dr. Bruckner is currently Professor of Pharmacology and Toxicology at the University of Georgia College of Pharmacy. He is also Professor in the Department of Physiology and Pharmacology at the University of Georgia College of Veterinary Medicine. He received his Ph.D. in Toxicology from the University of Michigan in 1974. He has previously held faculty positions at the University of Kansas and the University of Texas Medical School at Houston. He is actively engaged in graduate education and in

federally-funded research projects. Dr. Bruckner's research focus is on the toxicology and toxicokinetics of solvents, drug-solvent interactions at occupational exposure levels, and toxicokinetic bases for susceptibility of children to insecticides and other chemicals. Dr. Bruckner has published more than 200 journal articles, book chapters, and abstracts. He has also served on a variety of expert panels and committees for the EPA, National Institutes of Health, National Aeronautics and Space Administration, Agency for Toxic Substances and Disease Registry, Food and Drug Administration, and National Academy of Sciences.

3. Deborah A. Cory-Slechta, Ph.D., University of Rochester School of Medicine and Dentistry

i. *Expertise:* Toxicology (neurotoxicology and developmental/reproductive) and Human Health Risk Assessment

ii. *Education:* University of Minnesota, Ph.D. in Experimental Psychology (1977)

iii. *Professional Experience:* Dr. Cory-Slechta is currently a Professor in the Department of Environmental Medicine and the Department of Pediatrics at the University of Rochester School of Medicine and Dentistry, where she also serves as co-director of the Behavioral Sciences Facility Core and director of the Animal Behavior Core. Dr. Cory-Slechta received her Ph.D. from the University of Minnesota in 1977 and worked as a junior staff fellow of the Food and Drug Administration (FDA) National Center for Toxicological Research (NCTR) beginning in 1979. She was appointed to the faculty of the University of Rochester Medical School in 1982 and was appointed Chair of the Department of Environmental Medicine and Director of the National Institute of Environmental Health Sciences (NIEHS) Environmental Health Sciences Center at the University of Rochester in 1998. From 2000 to 2002, she was the Dean for Research and Director of the AAB Institute for Biomedical Sciences. Following her appointment as Dean, she served from 2003 to 2007 as the Chair of the Department of

Environmental and Occupational Medicine at Robert Wood Johnson Medical School and as Director of the Environmental and Occupational Health Sciences Institute, a joint Institute of the Robert Wood Johnson Medical School and Rutgers. Dr. Cory-Slechta's research has focused largely on environmental neurotoxicants as risk factors for behavioral disorders and neurodegenerative disease. These research efforts have resulted in over 170 papers and book chapters to date. Dr. Cory-Slechta has served on numerous national research review and advisory panels, including committees of the National Institutes of Health, NIEHS, NCTR, EPA, National Academy of Sciences, Institute of Medicine, and the Agency for Toxic Substances and Disease Registry, Centers for Disease Control. In addition, Dr. Cory-Slechta has served on the editorial boards of several journals including *Environmental Health Perspectives*, *Neurotoxicology*, *Toxicology*, *Toxicological Sciences*, *Fundamental and Applied Toxicology*, *Neurotoxicology* and *Teratology*, and *American Journal of Mental Retardation*. She has held the elected positions of President of the Neurotoxicology Specialty Section of the Society of Toxicology, President of the Behavioral Toxicology Society, and been named a Fellow of the American Psychological Association.

4. Jamie C. DeWitt, Ph.D., East Carolina University

- i. *Expertise:* Toxicology (immunotoxicology, neurotoxicology, and developmental)
- ii. *Education:* Indiana University, Ph.D. in Environmental Science and Neural Science (2004)
- iii. *Professional Experience:* Dr. DeWitt is an Assistant Professor in the Department of Pharmacology and Toxicology at the Brody School of Medicine at East Carolina University (ECU). She is affiliated with The Harriet and John Wooten Laboratory for Alzheimer's and Neurodegenerative Diseases Research and holds an adjunct appointment in the ECU Department of Public Health. Dr. DeWitt received her Ph.D. in Environmental Science and

Neural Science from the School of Public and Environmental Affairs and Program in Neural Science at Indiana University in 2004. She also completed postdoctoral training in Developmental Cardiotoxicity at Indiana University-Bloomington and in Immunotoxicology at EPA through a cooperative training agreement with the University of North Carolina at Chapel Hill. Dr. DeWitt's main research focus is on how toxicants found in the environment can lead to neurodevelopmental and neurodegenerative disorders via disruption of the developing immune system. Much of her past research has involved the immunotoxicity of PFOA and related polyfluoroalkyl substances (PFASs). Dr. DeWitt has published seven peer reviewed research articles, three review papers and two book chapters that address the biological effects of PFOA, as well as one paper on the effects of PFOS on immune function. Her publications describe effects as well as underlying mechanisms following adult and developmental exposure. Her research experience and publication record (more than 25 peer reviewed manuscripts, 6 review articles, 9 book chapters) extend beyond the effects of perfluoroalkyl acids and working with rodent models. She is currently editing a book on the general toxicity of PFASs and is a current member of the mechanistic working group for Monograph 110 of the International Agency for Research on Cancer, which will include an assessment of PFOA. She is on the editorial boards of the *Journal of Immunotoxicology* and the *Journal of Environmental Toxicology and Health* and has reviewed grants for the U.S. Department of Defense and the National Institute of Occupational Safety and Health (NIOSH). She has also been a manuscript reviewer for more than 20 journals. Dr. DeWitt is the current president of the North Carolina chapter of the Society of Toxicology (SOT) and the Junior Councilor for the Immunotoxicology Specialty Section of the SOT. She also was awarded the Outstanding Young Investigator Award from the Immunotoxicology Specialty Section in 2013.

5. Neeraja K. Erraguntla, Ph.D., DABT, Texas Commission on Environmental Quality

- i. *Expertise*: Toxicology (liver effects, neurotoxicology, immunotoxicology, and developmental/reproductive) and Human Health Risk Assessment
- ii. *Education*: Louisiana State University, Ph.D. in Physiology, Pharmacology, & Toxicology (1998)
- iii. *Professional Experience*: Dr. Erraguntla is currently a Senior Toxicologist/Project Manager at the Texas Commission on Environmental Quality (TCEQ). She is also an Adjunct Assistant Professor at Texas A&M School of Public Health. Dr. Erraguntla received her Ph.D. in Physiology, Pharmacology, and Toxicology from Louisiana State University in 1998. Prior to joining TCEQ, Dr. Erraguntla served as a Scientific Advisor at Life Technologies (2001-2004) and as a Research Fellow/Research Associate at the University of Texas Southwestern Medical Center (1998-2001). Dr. Erraguntla was board-certified as a Diplomate of the American Board of Toxicology in 2012. Her work focuses on air toxics, multimedia risk assessment, and development of toxicity factors for various industrial chemicals. This involves general review of toxicological studies, weight-of-evidence (WOE) analysis by the integration of science along multiple lines of evidence (epidemiology, in vivo & in vitro experimental toxicology, and human clinical studies) and advising staff on hazard classification. Dr. Erraguntla is also a team leader working on developing a framework for conducting systematic reviews and determining WOE for toxicity factors. Dr. Erraguntla has been an invited speaker at over eight national and state/regional meetings. She is currently a member of EPA's Science Advisory Board Environmental Justice Technical Guidance Panel and has been a member of EPA's Acute Exposure Guideline Levels Committee. Dr. Erraguntla has also been a full member of the

Society of Toxicology (SOT) since 2011 and has supported SOT's Specialty Sections and Special Interest Groups.

6. Penelope A. Fenner-Crisp, Ph.D., DABT, Independent Consultant

i. *Expertise:* Human Health Risk Assessment and Mode-of-Action

ii. *Education:* University of Texas Medical Branch, Ph.D. in Pharmacology (1968)

iii. *Professional Experience:* Dr. Fenner-Crisp has over 35 years of experience in human health and ecological risk assessments and is currently an independent consultant after retiring from her position as the Executive Director of the International Life Sciences Institute (ILSI) Risk Science Institute (2000-2004). Prior to joining ILSI, Dr. Fenner-Crisp was employed by EPA, where she served in a variety of capacities for over 22 years (1978-2000) including Senior Science Advisor to the Director and Deputy Director of the Office of Pesticide Programs, Director of the Health Effects Division of the Office of Pesticide Programs, Director of the Health and Environmental Review Division of the Office of Pollution Prevention and Toxic Substances, and Senior Toxicologist in the Health Effects Branch of the Office of Drinking Water. She was a charter member of EPA's Risk Assessment Forum (RAF), a group of EPA senior scientists who are experts in all areas of human, ecological, and exposure assessment, and served as the RAF chair from 1998 until her retirement from EPA in 2000. Dr. Fenner-Crisp received her Ph.D. in Pharmacology from the University of Texas Medical Branch in Galveston in 1968 and completed a Postdoctoral Fellowship in Pharmacology at Georgetown University Schools of Medicine and Dentistry (1971-1976), with an emphasis on reproductive endocrinology. Her 35 years of experience includes hands-on practice, and management oversight, of all components of both human health and ecological risk assessments related to drinking water contaminants, industrial chemicals, pesticides and foodborne pathogens. Dr.

Fenner-Crisp has served on numerous committees and panels including expert panels charged with the review of EPA Integrated Risk Information System documents, EPA Advisory Committees, EPA Science Advisory Board Drinking Water Committee, and several World Health Organization Panels, to name a few. She has also played a key role in the development of many EPA science policies, including the policy guidance for use of Monte Carlo analyses in exposure assessment, the cumulative risk conceptual framework, implementation of the cancer guidelines, and those relevant to implementation of the 1996 Food Quality Protection Act. Dr. Fenner-Crisp is a member of the Society of Toxicology since 1983, and the Society for Risk Analysis (SRA) since 1981, where she was the recipient of the SRA's first Risk Practitioner award. She has been a Diplomate of the American Board of Toxicology since 1984 and served a four-year term on its Board of Directors from 2001-2005. Dr. Fenner-Crisp has been an invited speaker at over 100 national and international meetings and workshops, and has authored or co-authored over 40 publications, including peer-reviewed journal articles, reports, and book chapters.

7. Jeffrey W. Fisher, Ph.D., U.S. Food and Drug Administration

i. *Expertise:* Toxicology (developmental/reproductive), Human Health Risk Assessment, and Pharmacokinetic Models

ii. *Education:* Miami University of Ohio, Ph.D. in Zoology/Toxicology (1987)

iii. *Professional Experience:* Dr. Fisher is currently a Research Toxicologist at the U.S. Food and Drug Administration (FDA), National Center for Toxicological Research. He was formerly a Professor in the Department of Environmental Health Science, College of Public Health at the University of Georgia (UGA). He joined UGA in 2000 and served as Department Head of the Department of Environmental Health Sciences from 2000 to 2006 and Director of the

Interdisciplinary Toxicology Program from 2006-2010. Prior to joining UGA, he spent most of his career at Wright Patterson Air Force Base, where he was Principal Investigator and Senior Scientist in the Toxics Hazards Division and Technical Advisor for the Operational Toxicology Branch. Dr. Fisher's research interests are in the development and application of biologically based mathematical models to ascertain health risks from environmental, food-borne and occupational chemical exposures. Dr. Fisher's modeling experience includes working with chlorinated and non-chlorinated solvents, fuels, pesticides, perchlorate and bisphenol A. He has developed physiologically-based pharmacokinetic (PBPK) models for use in cancer risk assessment, estimating lactational transfer of solvents, understanding in utero and neonatal dosimetry, quantifying metabolism of solvent mixtures and developing biologically motivated models for the hypothalamic-pituitary-thyroid axis in rodents and humans. Dr. Fisher has published over 140 papers on pharmacokinetics and PBPK modeling in laboratory animals and humans. He has served on several national panels and advisory boards for the U.S. Department of Defense, Agency for Toxic Substances and Disease Registry, EPA and non-profit organizations. He was a U.S. delegate for the North Atlantic Treaty Organization. Dr. Fisher served on the International Life Sciences Institute Steering Committee, which evaluated chloroform and dichloroacetic acid using EPA-proposed Carcinogen Risk Guidelines. He is Past President of the Biological Modeling Specialty Section of the Society of Toxicology, reviewer for several toxicology journals, and was Co-Principal Investigator on a National Institutes of Health-supported workshop on Mathematical Modeling at the University of Georgia in the fall of 2003. Dr. Fisher was also a member of the National Academy of Sciences subcommittee on Acute Exposure Guideline Levels from 2004-2010 and for the EPA Science Advisory Board (SAB) (2007-2010). He is an ad hoc EPA SAB member for dioxin and perchlorate. Dr. Fisher

is a Fellow of the Academy of Toxicological Sciences, an associate editor for Toxicological Sciences, and on the editorial board of *Journal of Environmental Science and Health Part C Environmental Carcinogenesis & Ecotoxicology Reviews*.

8. William L. Hayton, Ph.D., The Ohio State University

i. *Expertise:* Membrane Transport, Pharmacokinetic Models, and Mode-of-Action

ii. *Education:* State University of New York, Ph.D. in Pharmaceutics (1971)

iii. *Professional Experience:* Dr. Hayton is a Professor Emeritus in the College of Pharmacy at

The Ohio State University. Dr. Hayton received a Ph.D. in Pharmaceutics from the State

University of New York at Buffalo in 1967. He was a member of the Washington State

University College of Pharmacy faculty for 19 years, rising to Chair of the

Pharmacology/Toxicology Graduate Program in 1982 and Acting Dean at the College of

Pharmacy in 1987. In 1990, he transferred to the Ohio State University as Chair of the Division

of Pharmaceutics, where he later served as Associate Dean for the Graduate Programs and

Research until his retirement in 2010. Dr. Hayton's expertise is pharmacokinetics, particularly

construction and validation of mathematical models that describe or explain the kinetics of

complex biological systems. One recent research interest is characterization of the Fc receptor-

mediated transport and catabolism of albumin and IgG in wild type and FcR knockout mice. A

second recent project is the quantitative modeling of the female hypothalamus-pituitary-gonad

(HPG) axis in the female rainbow trout (*Oncorhynchus mykiss*). The model is based on and

integrates the biology of gonadotropin, estrogen, androgen and maturational hormone signaling

systems, and it includes key intermediate steps in the signaling pathways; viz., gonadotropin

and sex steroid synthesis, hormone receptors and their corresponding mRNA levels. Dr.

Hayton's expertise extends to interspecies scaling of pharmacokinetic model parameter values

and xenobiotic metabolism. Dr. Hayton is author or co-author of over 100 peer-reviewed scientific publications and has held peer-reviewed grant support from the National Institutes of Health, EPA, U.S. Air Force Office of Scientific Research, U.S. Food and Drug Administration, and U.S. Fish and Wildlife Service. He previously served on the EPA Science Advisory Board Perfluorooctanoic Acid Risk Assessment Review Panel.

9. Matthew P. Longnecker, Sc.D, M.D., National Institute of Environmental Health Sciences

i. *Expertise:* Epidemiology and Pharmacokinetic Models

ii. *Education:* Harvard School of Public Health, Sc.D. in Epidemiology (1989); Dartmouth Medical School, M.D. (1981)

iii. *Professional Experience:* Dr. Longnecker, M.D., Sc.D., is the head of the Biomarker-based Epidemiology Group at the National Institute of Environmental Health Sciences (NIEHS). Dr. Longnecker received an M.D. from Dartmouth Medical School and completed a residency in internal medicine at Temple University Hospital in Philadelphia. After receiving a Sc.D. in Epidemiology from Harvard School of Public Health in 1989, he served as an Assistant Professor in the Department of Epidemiology at the University of California, Los Angeles, School Of Public Health. Since 1996, Dr. Longnecker has served as Adjunct Professor/ Associate Professor in the Department of Epidemiology, School of Public Health, University of North Carolina at Chapel Hill. He came to the NIEHS Epidemiology Branch in 1995, as a tenure-track investigator. Dr. Longnecker's research program is focused on the health effects of persistent organic pollutants (e.g., the DDT metabolite p,p'-DDE, and polychlorinated biphenyls). He is particularly interested in the effects of intrauterine exposure to persistent organic pollutants in relation to intrauterine growth, preterm birth, birth defects, neurologic findings at birth, growth, neurodevelopment, intelligence, and hearing. Recently, Dr. Longnecker

has completed and has ongoing a series of studies on perfluorinated alkyl substances in relation to reproductive and pediatric outcomes. In addition, he has begun studying the effects of early, low-level exposure to the nonpersistent pollutants, bisphenol A and organophosphate pesticides. Dr. Longnecker's research efforts have resulted in over 180 papers and book chapters to date. He has served as a leader for numerous national and international committees, such as for the Society for Epidemiologic Research and the International Society for Environmental Epidemiology, and has been on numerous national and international scientific advisory boards, including the EPA Science Advisory Board for the Perfluorooctanoic Acid Risk Assessment Review.

10. Julie Melia, Ph.D., DABT, SRC, Inc.

- i. *Expertise:* Toxicology (neurotoxicology, developmental/reproductive, liver effects), Human Health Risk Assessment, and Mode-of-Action
- ii. *Education:* Northeastern University, Ph.D. in Biomedical Sciences/Toxicology (1990)
- iii. *Professional Experience:* Dr. Melia is currently a Senior Toxicologist at SRC, Inc. where she has served as Program Manager and provided toxicological support for several EPA programs and offices. She is also an Adjunct Scientist and member of the Maine Center for Toxicology and Environmental Health at the University of Southern Maine. She received her Ph.D. in Biomedical Sciences/Toxicology from Northeastern University in 1990 and has 24 years of experience in the design and management of chemical toxicity evaluations and human health and ecological risk assessments. Prior to joining SRC in 2003, Dr. Melia was employed in the private sector, where she managed multidisciplinary project teams and contributed to more than 50 Comprehensive Environmental Response, Compensation and Liability Act (CERCLA), Resource Conservation and Recovery Act (RCRA), and state-directed risk

assessments. Dr. Melia was board-certified as a Diplomate of the American Board of Toxicology in 2004 and has expertise in the critical review of mechanistic toxicology studies and the evaluation of chemical-specific modes of action. Dr. Melia has addressed complex toxicological issues related to human exposure to many chemicals including, phthalates, PAHs, polychlorinated biphenyls (PCBs), pesticides (DDT, kepone), chlorinated solvents, brominated trihalomethanes, 1,4-dioxane, and ethanol. She has demonstrated innovative approaches to addressing challenging technical issues related to chemical toxicology and risk assessment and has significant experience in the critical review of epidemiology, toxicology, and mechanistic studies and the development of quantitative toxicity values. Dr. Melia has presented information to the EPA Science Advisory Board and has served as an external peer reviewer for Agency for Toxic Substances and Disease Registry Toxicological Profiles. She is a member of the Society of Toxicology, and the International Society of Regulatory Toxicology and Pharmacology.

11. Andy L. Nong, Ph.D., Health Canada

i. *Expertise:* Pharmacokinetic Models

ii. *Education:* Université de Montréal, Ph.D. in Public Health (Toxicology) (2007)

iii. *Professional Experience:* Dr. Nong is currently a Research Scientist at the Environmental Health Sciences and Research Bureau at Health Canada. He is also an Affiliate at the R. Samuel McLaughlin Centre for Population Health Risk Assessment within the University of Ottawa. He received his Ph.D. in Public Health from the Université de Montréal in 2007 and holds a Master's degree in Pharmaceutical Sciences (2001). Prior to joining Health Canada, Dr. Nong served as Research Investigator (2008-2009) and Postdoctoral Fellow (2005-2008) at The Hamner Institutes for Health Sciences. His work has been recognized, in particular, for pharmacokinetics and biological modeling approaches in risk assessment. Specifically, his

research program explores the use of biological computer models to simulate and interpret the fate and effects of chemical exposure. This work has led to deriving drinking water dose estimates, evaluating chemical mixture exposure, interpreting biomonitoring and exposure surveys, and investigating models for toxicity screening approaches for human equivalent chemical exposures. Dr. Nong is a member of the expert panel for Genome Canada's Bioinformatics and Computational Biology roadmap. His international involvement includes a partnership with the EPA National Center for Computational Toxicology and Toxicity Forecaster (ToxCastTM) program, providing technical support for documents on PBPK modeling in risk assessment for EPA and the World Health Organization/International Program on Chemical Safety. Dr. Nong has authored and co-authored several publications, including peer-reviewed articles and book chapters, and served on the Board of Editors of the *Journal of Applied Toxicology*.

12. Stephen M. Roberts, Ph.D., University of Florida

- i. *Expertise:* Toxicology (liver effects and immunotoxicology) and Human Health Risk Assessment
- ii. *Education:* University of Utah, Ph.D., Department of Pharmacology (1973)
- iii. *Professional Experience:* Dr. Roberts is a Professor at the University of Florida with joint appointments in the College of Veterinary Medicine, College of Medicine, and College of Public Health and Health Professions. He also serves as Director of the Center for Environmental & Human Toxicology at the University of Florida. Dr. Roberts received a Ph.D. from the University of Utah College of Medicine Department of Pharmacology in 1973. After a National Institutes of Health postdoctoral fellowship in pharmacokinetics at SUNY Buffalo (1977- 1980), he served on the faculties of the University of Cincinnati College of Pharmacy

(1980-1986) and the College of Medicine at the University of Arkansas for Medical Sciences (1986-1989). Dr. Roberts has been a faculty member at the University of Florida since 1989. His research addresses mechanisms of toxicity, particularly involving the liver and immune system. Dr. Roberts also has an active research program in toxicokinetics, especially involving bioavailability of environmental toxicants, as well as approaches to evaluation of potential toxicity of nanomaterials. His teaching responsibilities at the University of Florida include graduate courses in toxicology and risk assessment, as well as invited lectures in other graduate and professional courses. Dr. Roberts' research efforts have resulted in over 100 papers and book chapters to date, as well as over 100 published abstracts and letters. Dr. Roberts has served on numerous national advisory panels, including for the EPA, Department of Health and Human Services, and the Food and Drug Administration. He is currently the Associate Editor for *Nanotoxicology* and is currently or recently on the Editorial Boards of *Toxicology and Applied Toxicology*, *Human and Ecological Risk Assessment*, and *Dose-Response*.

13. Angela L. Slitt, Ph.D., University of Rhode Island

- i. *Expertise:* Toxicology (liver effects) and Membrane Transport
- ii. *Education:* University of Connecticut, Ph.D. in Pharmacology and Toxicology (2000)
- iii. *Professional Experience:* Dr. Slitt is currently an Associate Professor in the Department of Biomedical and Pharmaceutical Sciences at the University of Rhode Island. Dr. Slitt received her Ph.D. in Pharmacology and Toxicology from the University of Connecticut in 2000, and then served until 2004 as a postdoctoral fellow at the University of Kansas Medical Center. Dr. Slitt has been a faculty member at the University of Rhode Island since 2006. Dr. Slitt's graduate and postdoctoral training was heavily focused on liver biology and health, with a focus in the area of toxicology, and included research in nuclear receptors, biotransformation, and

transporter expression. Her current research interests focus on how 1) expression of drug transporters affects chemical disposition and toxicity, 2) nutrition and intake of dietary antioxidants affects the expression of drug transporters, 3) liver disease (i.e., diabetes, cholestasis, and ethanol cirrhosis) affects transporter expression and chemical disposition, and 4) transporter expression affects cholesterol transport and susceptibility to gallstone formation. She has also recently investigated the effect of PFOS on caloric restriction in mice. Dr. Slitt is presently on the Editorial Board of *BMC Pharmacology and Toxicology*, *Journal of Biochemical and Molecular Toxicology*, and *Toxicology Methods and Mechanism*, and is an ad-hoc reviewer for numerous other journals. She is author or co-author of over 50 peer-reviewed scientific publications, and was recently awarded the University of Rhode Island Early Career Faculty Research Excellence Award.

14. Calvin C. Willhite, Ph.D., Risk Sciences International and McLaughlin Centre for Population Health Risk Assessment

- i. *Expertise:* Toxicology (developmental/reproductive) and Human Health Risk Assessment
- ii. *Education:* Dartmouth Medical School, Ph.D. in Pharmacology (1980)
- iii. *Professional Experience:* Dr. Willhite has more than 30 years of experience in the fields of toxicology and human health risk assessment. He is currently employed as a Contract Toxicologist for Risk Sciences International and McLaughlin Centre for Population Health Risk Assessment at the University of Ottawa, where he performs chemical-specific human health risk assessments for Health Canada and European Union REACH. Prior to his present employment, Dr. Willhite also conducted chemical specific risk assessment as a Toxicologist for the National Sanitation Foundation (2005-2012) and for the State of California (1985-2011). He received his Ph.D. in Pharmacology from the Dartmouth Medical School in 1980. Dr. Willhite has more

than 100 publications in basic and applied toxicology and human health risk assessment. He has experience with many types of compounds including chemicals in occupational, submarine and ambient air; drugs in dermatology; endocrine-active drugs and environmental chemicals; inorganic elements; and dietary supplements. His editorial responsibilities include serving on the Editorial Board and/or as Reviewer of many peer reviewed toxicology journals. He is currently serving on the Editorial Board of *Toxicology and Applied Toxicology*, *Journal of Toxicology*, *Journal of Toxicology and Environmental Health Part A*, and the *International Journal of Toxicology*. He has been a member of the National Academy of Sciences Committee on Toxicology, EPA National Advisory Committee, American Conference of Industrial Hygienists, International Agency for Research on Cancer, Society of Toxicology, and National Institutes of Health advisory committees.

15. Raymond G. York, Ph.D., DABT, Fellow-ATS, RG York and Associates, LLC

- i. *Expertise:* Toxicology (developmental/reproductive and neurotoxicology)
- ii. *Education:* University of Cincinnati, Ph.D. in Toxicology (1982)
- iii. *Professional Experience:* Dr. York is a board-certified Toxicologist and operates his own consulting company, RG York and Associates, LCC. Dr. York received his Ph.D. in Toxicology at the University of Cincinnati Medical Center in 1982 and completed a two-year postdoctoral fellowship at the Children's Hospital Research Foundation in Cincinnati in the area of developmental toxicology. He has previously served as Senior Scientific Director at WIL Research Laboratories (2008-2011), Associate Director of Research/Program Manager at Charles River Laboratories (1995-2008), and Director of Reproductive Toxicology and Neurotoxicology at International Research and Development Corporation (now MPI Research) (1989-1995). Dr. York was board-certified as a Diplomate of the American Board of

Toxicology in 1986 and served four years on its Board of Directors. His work focus is in the field of toxicology, particularly reproductive and developmental toxicology. Dr. York has served as a study director on over 700 safety evaluation studies, published over 100 manuscripts, review articles, book chapters and abstracts, and has been an invited speaker at international conferences. He is currently on the EPA Science Advisory Board for trimethylbenzene. Dr. York has also been a member of the Society of Toxicology (SOT) since 1985 and the American College of Toxicology since 1998. He is currently President of the Reproductive and Developmental Toxicology Specialty Section of SOT. In addition, Dr. York has been a member of the Teratology Society since 1984, and served as the President for both the Midwest Teratology Association (1989) and the Middle Atlantic Reproduction and Teratology Association (2004). He has served as a reviewer for *Toxicology and Applied Pharmacology* and *International Journal of Toxicology* and as a member of the Editorial Board of *Fundamental and Applied Toxicology*.

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